

seem to be subject to the same simple law as the former class of binary combinations. Whether we may find reason to consider them as mere solutions of the compound of single proportionals in the excess of acid, is a matter which, with some apparent exceptions occurring amongst the sulphurets, must be left for decision by future examination.

437. In any investigation of these points, great care must be taken to exclude water; for if present, secondary effects are so frequently produced as often seemingly to indicate an electro-decomposition of substances, when no true result of the kind has occurred (477, etc.).

438. It is evident that all the cases in which decomposition *does not occur*, may depend upon the want of conduction (412, 149); but that does not at all lessen the interest excited by seeing the great difference of effect due to a change, not in the nature of the elements, but merely in their proportions; especially in any attempt which may be made to elucidate and expound the beautiful theory put forth by Sir Humphry Davy,¹ and illustrated by Berzelius and other eminent philosophers, that ordinary chemical affinity is a mere result of the electrical attractions of the particles of matter.

If v. *On a new Measurer of Volta-electricity*

439. I have already said, when engaged in reducing common and voltaic electricity to one standard of measurement (113), and again when introducing my theory of electro-chemical decomposition (240, 241, 246), that the chemical decomposing action of a current *is constant for a constant quantity of electricity*, notwithstanding the greatest variations in its sources, in its intensity, in the size of the *electrodes* used, in the nature of the conductors (or non-conductors) through which it is passed, or in other circumstances. The conclusive proofs of the truth of these statements shall be given almost immediately (518, etc.).

440. I endeavoured upon this law to construct an instrument which should measure out the electricity passing through it, and which, being interposed in the course of the current used in any particular experiment, should serve at pleasure, either as a *comparative standard* of effect, or as a *positive measurer* of this subtile agent.

441. There is no substance better fitted,

under ordinary
circumstances, to be the indicating body in such
an instrument

¹ *Philosophical Transactions*, 1807, pp. 32, 39; also 1826,
pp. 387, 389.